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The Impact of Entrepreneurship Education, Proactive Personality, and a Sustainable Environment on the Validity and Reliability of a Green Entrepreneurial Intention Instrument

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ABSTRACT

This study aims to design and test the validity of a green entrepreneurship intention measurement instrument, focusing on the influence of entrepreneurship education, proactive personality, and sustainable environment. A preliminary test of the instrument was conducted on 30 students at Malang State University in May–June 2025. Statistical analysis using Pearson Product Moment correlation and Cronbach's alpha coefficient showed that this instrument has very strong psychometric characteristics. The corrected item-total correlations ranged from 0.695 to 0.939 ($p<0.001$), while Cronbach's alpha reached 0.984—a figure that reflects a very high level of reliability and internal consistency. These findings indicate that the instrument is suitable for use as a valid and consistent measuring tool in further research on the driving factors of green entrepreneurship, as well as a practical reference for educators and policymakers in assessing and improving sustainable entrepreneurship capacity.

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INTRODUCTION

High unemployment rates are a major challenge for the Indonesian economy, mainly because labour force growth far exceeds the rate of job creation. Every year, waves of new graduates flood the labour market, widening the gap between job supply and demand. On the other hand, technological advances and increasingly fierce business competition are pushing companies to focus on efficiency and profits, often at the expense of environmental responsibility. This situation has sparked a new awareness: economic progress cannot be separated from environmental sustainability. This is where the concept of green economy—which emphasises efficient use of resources and ecology-based development—is beginning to gain serious attention.

Conventional business practices that damage ecosystems and ignore the social impact on local communities are now considered unacceptable. The green economy has emerged as an alternative, encouraging businesses to innovate with environmentally friendly approaches. Students, as agents of future change, have great potential to develop an entrepreneurial spirit oriented towards sustainability. Higher education institutions play a strategic role in leading this transformation by integrating entrepreneurship education and environmental awareness into their curricula (Rippa & Secundo, 2018). Through compulsory programmes such as sustainable entrepreneurship courses, campuses can shape a new generation of entrepreneurs who not only pursue profit but are also committed to positive social and environmental impacts.

The Indonesian economy is currently facing a major challenge in the form of high unemployment, which is mainly caused by the imbalance between population growth and job availability. Every year, the number of new graduates entering the labour market continues to increase, putting significant pressure on the formal sector's absorption capacity. On the other hand, technological acceleration and global competition are pushing companies to prioritise efficiency and profitability, often at the expense of environmental sustainability. However, public awareness is growing that economic progress cannot be separated from ecological responsibility. In this context, the concept of green economy — which emphasises the wise use of resources and development in harmony with nature — is gaining widespread attention as a strategic solution.

Although universities, such as Malang State University, actively promote entrepreneurship and environmental awareness, the rate of sustainable business creation by students is still relatively low. This phenomenon indicates the need for a systematic approach that can synergise entrepreneurial competencies with environmental conservation principles. Therefore, this study aims to analyse the extent to which entrepreneurship education, proactive personality, and environmental support contribute to students' interest in building green businesses. The results of this study are expected to serve as a basis for universities in designing more targeted and effective programmes to encourage student participation in the sustainable entrepreneurship ecosystem.

LITERATURE REVIEW

Entrepreneurship education aims to equip students with the knowledge, skills, attitudes, and values necessary to start and manage a business

independently (Sari Bida, 2021). Its implementation is often packaged in the form of structured programmes that guide students from the planning stage, through management, to business maintenance (Maridiah, Wida Tjutju, & Yuniarsih Wibowo, 2021). Many universities are now developing special initiatives to spark students' interest in becoming entrepreneurs, rather than just job seekers.

On the other hand, modern human activities have put enormous pressure on environmental carrying capacity, creating an imbalance between economic growth and sustainability principles. In response to this, global agendas such as the Sustainable Development Goals (SDGs) emphasise the importance of a holistic approach that integrates social, economic, and environmental dimensions (Liang et al., 2025). The relationship between economic development and the environment is dynamic: in the early stages, economic growth often has a negative impact on ecosystems, but as the transition to cleaner and environmentally friendly technology-based sectors progresses, environmental conditions can actually improve (Kasinathan et al., 2022; Lee et al., 2024; Niza et al., 2024). Research also shows that regions dominated by heavy industry tend to face greater environmental challenges than areas that rely on the service sector, which generally has a lower ecological footprint (Li et al., 2024; Tingli et al., 2025).

To achieve authentic sustainability, a strategic approach is required that encompasses optimising ecosystem value, implementing strict environmental policies, and promoting circular economy models based on resource recycling. This approach not only aligns economic growth with environmental conservation, but also serves as an important pillar in achieving global sustainability targets (Escorcia Hernández et al., 2024; Ullberg et al., 2024).

On an individual level, a proactive personality reflects a person's tendency to actively influence their environment — either by identifying opportunities or through persistent efforts to achieve goals (Su et al., 2024). When this proactive character is combined with a supportive educational environment, students tend to be more confident in innovating and taking creative initiatives (Abdel Hadi et al., 2023; Chu & Chou, 2024; Dai et al., 2024). Institutional support, such as positive relationships with lecturers and the availability of spaces for expression, further strengthens their courage to put forward new ideas and maximise their potential (Johari et al., 2022; Zheng et al., 2020). Through the process of sharing knowledge and applying skills in practice, these proactive students indirectly become agents of green entrepreneurship, while also creating a more collaborative, dynamic, and innovative academic ecosystem.

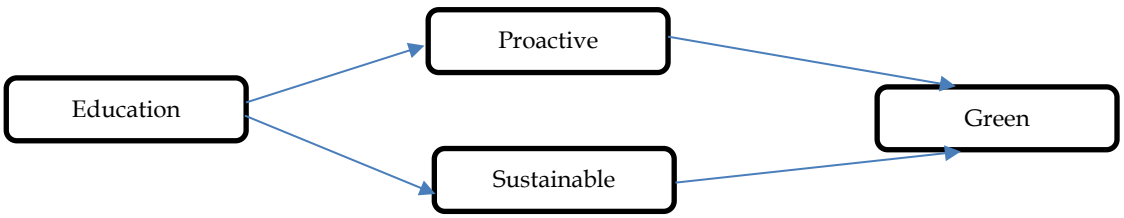

Figure 1. Conceptual Framework

METHODOLOGY

This study utilises a quantitative approach to ensure the reliability and credibility of the findings. This method involves a series of systematic procedures, including testing the validity and reliability of research instruments and applying statistical models to analyse the relationships between variables (Basso, 2017; Cortina, 2020; Dash & Paul, 2021; Hair et al., 2019; Kline, 2011; Neumayer & Plümper, 2017; Orçan, 2018; Vova-Chatzi et al., 2020a). To ensure the content validity of the instrument, the initial stage was conducted through discussions and assessments by experts in related fields (Almanasreh et al., 2019; Snow, 2012a). The research location was determined to be the Business Education Study Programme, State University of Malang.

The data collected was ordinal and obtained from primary and secondary sources, mainly through survey instruments and questionnaires. In selecting respondents, the researchers applied stratified sampling techniques (Berndt, 2020a; Buntin, 2020a; Parsons, 2014a), which involved first dividing the student population into strata based on certain characteristics—such as age, gender, or semester level—and then randomly selecting samples from each stratum. This strategy is designed to ensure proportional representation of each group in the final sample, so that the research results better reflect the diversity of the target population (Berndt, 2020b; Parsons, 2014b).

RESEARCH RESULT

Validity Test

In the early stages of data analysis, researchers must ensure that their measurement instruments accurately measure the targeted concepts. This is done through validity testing, which assesses how well each item in the instrument correlates with the overall total score. To measure this relationship, Pearson Product Moment correlation is used, the results of which show the extent to which each item is a valid representation of the research construct. This process is very important to ensure that the data collected is reliable and suitable for further analysis.

Table 1. Validity Test Results

Correlations

Item		TOTAL	Item		Total
Item_1	Pearson Correlation	.899**	Item_13	Pearson Correlation	.888**
	Sig. (2-tailed)	.000		Sig. (2-tailed)	.000
	N	30		N	30
Item_2	Pearson Correlation	.812**	Item_14	Pearson Correlation	.740**
	Sig. (2-tailed)	.000		Sig. (2-tailed)	.000
	N	30		N	30
Item_3	Pearson Correlation	.823**	Item_15	Pearson Correlation	.881**
	Sig. (2-tailed)	.000		Sig. (2-tailed)	.000
	N	30		N	30
Item_4	Pearson Correlation	.854**	Item_16	Pearson Correlation	.798**
	Sig. (2-tailed)	.000		Sig. (2-tailed)	.000
	N	30		N	30
Item_5	Pearson Correlation	.935**	Item_17	Pearson Correlation	.714**
	Sig. (2-tailed)	.000		Sig. (2-tailed)	.000
	N	30		N	30
Item_6	Pearson Correlation	.939**	Item_18	Pearson Correlation	.880**

	Sig. (2-tailed)	.000		Sig. (2-tailed)	.000
	N	30		N	30
Item_7	Pearson Correlation	.902**	Item_19	Pearson Correlation	.884**
	Sig. (2-tailed)	.000		Sig. (2-tailed)	.000
	N	30		N	30
Item_8	Pearson Correlation	.866**	Item_20	Pearson Correlation	.855**
	Sig. (2-tailed)	.000		Sig. (2-tailed)	.000
	N	30		N	30
Item_9	Pearson Correlation	.927**	Item_21	Pearson Correlation	.838**
	Sig. (2-tailed)	.000		Sig. (2-tailed)	.000
	N	30		N	30
Item_10	Pearson Correlation	.867**	Item_22	Pearson Correlation	.787**
	Sig. (2-tailed)	.000		Sig. (2-tailed)	.000
	N	30		N	30
Item_11	Pearson Correlation	.901**	Item_23	Pearson Correlation	.820**
	Sig. (2-tailed)	.000		Sig. (2-tailed)	.000
	N	30		N	30
Item_12	Pearson Correlation	.899**	Item_24	Pearson Correlation	.876**
	Sig. (2-tailed)	.000		Sig. (2-tailed)	.000
	N	30		N	30

Source: processed by researcher, 2025

Based on the Pearson Product Moment validity test, this research instrument shows strong validity. All 24 items are highly correlated with the total score, with correlation coefficients ranging from 0.714 (Item 17) to 0.939 (Item 6). All of these values are statistically significant at $p<0.001$.

Since all coefficients far exceed the minimum acceptable threshold of $r=0.30$, it can be concluded that each item effectively measures the intended construct. Therefore, this instrument has strong overall validity, and all item scores can be relied upon for further analysis without the need for deletion or modification.

Table 2. Reliability Test Results

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item_1	106.90	1142.024	.887	.983
Item_2	107.13	1175.223	.795	.984
Item_3	107.30	1170.907	.806	.984
Item_4	107.10	1170.438	.840	.984
Item_5	107.07	1153.582	.928	.983
Item_6	107.07	1142.616	.932	.983
Item_7	107.53	1151.085	.892	.983
Item_8	107.23	1161.220	.853	.984
Item_9	106.97	1153.482	.919	.983
Item_10	107.10	1178.921	.856	.984
Item_11	107.30	1168.562	.892	.983
Item_12	107.40	1163.766	.889	.983
Item_13	107.27	1160.478	.877	.983
Item_14	106.97	1187.689	.718	.984
Item_15	107.03	1171.689	.870	.984
Item_16	107.47	1185.292	.782	.984
Item_17	107.30	1203.597	.695	.984
Item_18	107.17	1170.420	.869	.984
Item_19	107.17	1159.316	.872	.983
Item_20	107.57	1164.185	.840	.984
Item_21	107.20	1162.993	.821	.984
Item_22	107.43	1177.426	.768	.984
Item_23	107.17	1182.213	.805	.984
Item_24	107.10	1172.714	.865	.984

Source: processed by researcher, 2025

Results from the reliability analysis confirmed the scale's high internal consistency. The Cronbach's alpha coefficient was calculated at 0.984, which is well above the standard cut-off of 0.70. The corrected item-total correlations for all 24 items were also strong, falling between 0.695 and 0.932 and easily meeting the 0.30 requirement. This signifies that each item is a reliable component of the overall construct. The test further indicated that eliminating any item would yield a negligible change in the overall alpha, keeping it between 0.983 and 0.984. Thus, the decision was made to retain the full set of items to uphold the scale's consistency.

DISCUSSION

The effectiveness of entrepreneurship programs is well-documented by studies showing that a strong psychometric foundation is key to developing students' entrepreneurial confidence and intentions (Jena, 2020; Liu et al., 2023; Ramadani et al., 2022; Tantawy et al., 2021). Furthermore, the high validity scores for items on conceptual understanding and practical skills confirm that the associated instrument reliably measures both the cognitive and emotional facets of the learning experience. This evidence points to the necessity of using dynamic learning materials like simulations and case studies, which help students bridge the gap between theoretical knowledge and real-world practice.

This research highlights two key drivers of green entrepreneurial intention. First, the instrument's consistent reliability confirms that students' proactive traits (a core focus) are stable and measurable. The strength of the proactive personality correlations underscores the foundational role of psychological factors in this process (Ben Youssef et al., 2018; Schaltegger et al., 2016; Tur-Porcar et al., 2018). Second, the data on sustainable environmental support points to the importance of external facilitators; specifically, an eco-friendly campus environment and supportive policies that reinforce the psychological pathways to green intention (Hu et al., 2023; Lin et al., 2024).

To enhance the generalizability of this promising tool, subsequent research must move beyond its current, limited application to a similar student group. Key next steps include verifying the proposed factor structure via Confirmatory Factor Analysis (CFA) and establishing measurement invariance to guarantee the tool performs consistently across populations with different majors, genders, and cultural backgrounds. A mixed-methods approach would further enrich our understanding by qualitatively exploring how students accept and apply these principles.

The primary value of this instrument lies in its real-world application: it empowers educators and researchers to confidently create, measure, and iterate on sustainability-focused entrepreneurial programs. The proven robustness of the tool ensures that data collected is actionable, directly supporting evidence-based improvements to curriculum, strategic planning, and institutional policy-making for sustainability.

CONCLUSIONS AND RECOMMENDATIONS

The robust validity and reliability results confirm that this research instrument possesses strong psychometric properties for assessing

entrepreneurship education, proactive personality, and sustainable environmental support. Exemplary item-total correlation scores and an exceptional Cronbach's alpha coefficient ($\alpha = 0.984$) indicate that all scale items are highly reliable and require no revision or removal.

Consequently, this tool offers significant utility for academics, trainers, and policy-makers in evaluating the efficacy of green entrepreneurship curricula. Its practical applications include measuring shifts in green entrepreneurial intention following educational interventions, refining pedagogical methods through the integration of simulations and project-based learning, and monitoring the role of institutional infrastructure and policy in cultivating a sustainable entrepreneurial ecosystem.

ADVANCED RESEARCH

To enhance the validity of this research area, future work must overcome several limitations present in this study. The most significant of these is the geographically restricted sample, hindering the generalizability of the findings. The research design also omitted confirmatory factor analysis (CFA) and metric invariance tests, leaving the tool's factor structure and cross-population consistency unverified. Expanding the participant pool to include students from various institutions, majors, and cultures is a critical next step. It is also essential that future researchers apply CFA and invariance testing, alongside a mixed-methods methodology, to achieve a deeper and more textured insight into the development of green entrepreneurial intentions.

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